

WHAT IS CLAIMED IS:

1. A centralized resource system, comprising:
  - a plurality of compute resource units;
  - a plurality of visualization resource units;
  - a switching fabric coupling the plurality of visualization resource units to the plurality of compute resource units, the switching fabric operable to couple select one or more visualization resource units to select one or more compute resource units for generating at least one graphical image; and
  - a plurality of display devices coupled to the one or more select visualization resource units operable to display the at least one graphical image.
2. The system, as set forth in claim 1, wherein the plurality of display devices is coupled to the one or more select visualization resource units via a network.
3. The system, as set forth in claim 1, wherein the plurality of visualization resource units comprise:
  - a graphics engine; and
  - a plurality of compositors coupled to the graphics engine.
4. The system, as set forth in claim 1, wherein the plurality of visualization resource units comprise:
  - a plurality of graphics pipelines;
  - a plurality of compositors; and
  - a second switching fabric coupling the compositors to the plurality of graphics pipelines.
5. The system, as set forth in claim 1, wherein the plurality of visualization resource units comprise:
  - a plurality of graphics pipelines;
  - a plurality of converters each coupled to a respective graphics pipeline, each converter operable to packetize data from a graphics pipeline;
  - a plurality of compositors; and

a second switching fabric coupling the plurality of compositors to the plurality of converters.

6. The system, as set forth in claim 1, further comprising an agent operable to determine a requirement for computing resource units, determine a requirement for visualization resource units, and allocate the computing resource units and visualization resource units.

7. The system, as set forth in claim 1, wherein the switching fabric comprises a crossbar switch.

8. The system, as set forth in claim 5, wherein the second switching fabric comprises a crossbar switch.

9. A centralized resource system, comprising:

a plurality of first compute resource units;

a plurality of second compute resource units;

a switching fabric coupling the plurality of second compute resource units to the plurality of first compute resource units, the switching fabric operable to selectively couple outputs of the plurality of first compute resource units to inputs of the plurality of second compute resource units, the first and second plurality of compute resource units operable to function together to generate at least one execution result; and

a plurality of display devices coupled to the plurality of first and second compute resource units and operable to receive the execution results therefrom.

10. The system, as set forth in claim 9, wherein the plurality of user terminals is coupled to the plurality of first and second resource units via a network.

11. The system, as set forth in claim 9, wherein the plurality of second resource units comprise:

- a graphics engine; and
- a plurality of compositors coupled to the graphics engine.

12. The system, as set forth in claim 9, wherein the plurality of second resource units comprise:

- a plurality of graphics pipelines;
- a plurality of compositors; and
- a second switching fabric coupling the plurality of compositors to the plurality of graphics pipelines, the second switching fabric operable to selectively couple outputs of the plurality of graphics pipelines to inputs of the plurality of compositors.

13. The system, as set forth in claim 9, wherein the plurality of second resource units comprise:

- a plurality of graphics pipelines;
- a plurality of converters each coupled to a respective graphics pipeline, each converter operable to packetize data from a graphics pipeline;
- a plurality of compositors; and
- a second switching fabric coupling the plurality of compositors to the plurality of converters, the second switching fabric operable to selectively couple outputs of the plurality of converters to inputs of the plurality of compositors.

14. The system, as set forth in claim 9, further comprising an agent operable to determine a requirement for the first resource units, determine a requirement for the second resource units, and allocate the first and second resource units in response thereto.

15. The system, as set forth in claim 9, wherein the switching fabric comprises a crossbar switch.

16. The system, as set forth in claim 13, wherein the second switching fabric comprises a crossbar switch.

17. The system, as set forth in claim 9, wherein the plurality of user terminals are located remotely from the plurality of first and second resource units.

18. The system, as set forth in claim 9, wherein the plurality of display devices is coupled to the plurality of first and second resource units via a computer network.

19. The system, as set forth in claim 9, wherein the plurality of display devices is coupled to the plurality of first and second resource units via an Intranet.

20. The system, as set forth in claim 9, wherein the plurality of first resource units comprise central processing units.

21. The system, as set forth in claim 9, wherein the plurality of second resource units comprise central processing units.

22. A centralized resource system, comprising:  
first resource means;  
second resource means;  
means for selectively coupling one or more outputs of the first resource means to one or more inputs of the second resource means; and  
a plurality of display means coupled to the first and second resource means and operable to receive and display execution results therefrom.

23. The centralized resource system, as set forth in claim 22, further comprising second means for selectively coupling one or more outputs of the second resource means to inputs of the plurality of display means.

24. The centralized resource system, as set forth in claim 23, wherein the second selectively coupling means comprise means for switching.

25. The centralized resource system, as set forth in claim 22, wherein the selectively coupling means comprises means for switching.

26. The centralized resource system, as set forth in claim 22, wherein the second resource means comprise:

means for generating graphics data; and

means for compositing the graphics data coupled to the means for generating graphics data.

27. The centralized resource system, as set forth in claim 22, further comprising agent means for determining a requirement for the first resource means, determining a requirement for the second resource means, and allocating the first and second resource means in response thereto.

28. The centralized resource system, as set forth in claim 22, further comprising data storage means coupled to the first resource means for storing data.

29. A method of controlling and allocating compute resources, comprising: receiving a graphics visualization job to be executed by a plurality of compute resources;

determining compute resource requirements for the job;

determining compute resource availability;

allocating compute resources from the plurality of compute resources in response to the determined compute resource requirements and availability;

determining destinations to receive results of the job; and

allocating and configuring communication channels from the allocated compute resources to the determined destinations.

30. The method, as set forth in claim 29, further comprising:  
determining visualization resource requirements for the job;  
determining visualization resource availability; and  
allocating visualization resources in response to the compute resource requirements and availability.

31. The method, as set forth in claim 30, further comprising:  
determining second communication channels from the allocated computing resources to the allocated visualization resources; and  
allocating the second communication channels.

32. The method, as set forth in claim 30, further comprising initiating the job.

33. The method, as set forth in claim 30, wherein allocating communication channels comprises configuring a switch coupled between the allocated compute resources to the determined destinations.

34. The method, as set forth in claim 31, wherein allocating the second communication channels comprises configuring a second switch coupled between the allocated compute resources to the allocated visualization resources.

35. A graphics visualization architecture, comprising:  
a plurality of compute resource units;  
a plurality of graphics pipelines;  
a first switching fabric coupling the plurality of graphics pipelines to the plurality of compute resource units, the first switching fabric operable to selectively couple outputs of the plurality of compute resource units to inputs of the plurality of graphics pipelines;  
a plurality of compositors; and

a second switching fabric coupling the plurality of compositors to the plurality of graphics pipelines, the second switching fabric operable to selectively couple outputs of the plurality of graphics pipelines to inputs of the plurality of compositors.

36. The architecture, as set forth in claim 35, further comprising a plurality of display devices coupled to the plurality of compositors and operable to receive and display rendered graphical images received from the plurality of compositors.

37. The architecture, as set forth in claim 35, wherein the plurality of display devices is coupled to the plurality of compositors via the Internet.

38. The architecture, as set forth in claim 35, further comprising an agent operable to determine a requirement for the compute resource units, determine a requirement for the graphics pipelines, and allocate the compute resource units and graphics pipelines in response thereto.

39. The architecture, as set forth in claim 35, wherein the first and second switching fabrics each comprises a crossbar switch.